

# Inter (Part-I) 2014

Computer Science		PAPER: I
Time: 2.10 Hours	(SUBJECTIVE TYPE)	Marks: 60

## SECTION-I

### 2. Write short answers to any EIGHT (8) questions: (16)

i). What is system? List its different components.

Ans: A system can be defined as a combination of some related components interact with each other to perform some specific tasks.

A system may consist of the following elements

- Hardware
- Software
- People/Users
- Data
- Communication setup

ii). Enlist different technologies used in flat-panel display screens.

Ans: There are three types of technology used in Flat-Panel Display screens.

- \* LCD (Liquid-Crystal Display): It consists of a substance called Liquid Crystal, the molecules of which line up in a way that lighting behind the screen to create an image.
- \* ELD (Electro-Luminescent Display): It contains a substance that glows when it is charged by an electric current.
- \* Gas-Plasma Display: It is like a neon bulb, in which the display uses a gas that emits light in the presence of an electric current.

iii). What is application software?

Ans: A program or set of programs that are specially designed to solve the specific problems of user, are called application software or software packages.



iv). **What do you know about workgroup computing?**

Ans: In a computer network, people can work together as a group even when they are thousands of miles away from each other. This concept of working together is called workgroup computing.

v). **Define the term "EXTRANET".**

Ans: An extranet is a network of multiple intranets. It means that intranets of different companies are connected together for the collaboration among the companies. On an extranet each connected company gives selected rights to the employees of one or more other companies to access its intranet.

vi). **What is Bus Topology?**

Ans: In bus network, all nodes (or devices) are connected to a common communication medium or central single cable. This single cable is called bus. The devices or nodes are attached with the central cable (or bus) through interface connector. The central cable is the backbone cable, which functions as shared communication medium.

vii). **What is meant by encoding of data?**

Ans: Computer works with binary digits "0" and "1" only. Therefore all types of data are converted to binary form. Computer transmit data in the form therefore both sender and receiver should have the same standard rules to understand it. Different encoding schemes are used for this purpose.

viii). **Define the term "Modulation". Explain with an example.**

Ans: Conversion of digital signal into analog form for transmission is called modulation. It is done for transmission of data over telephone lines. Digital data must be converted to analog form before transmitting it through telephone line.

ix). **What is Full Duplex Mode of data transmission?**

Ans: In full-duplex communication mode, the data communication can take place in both directions simultaneously (i.e., at same time) on the same channel.



It is the fastest directional mode of communication. Example of this mode is conversation of the persons through telephone.

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**3. Write short answers to any EIGHT (8) questions: (16)**

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i). **State the purpose of ATM.**

Ans: ATM or "Automated Teller Machine" is used to withdraw cash directly from the machine without interaction of any person. It provides facilities to draw cash using ATM cards or other types of cards issued by the banks. Cash can be drawn at any time. Transactions can also be made from one account to another.

ii). **Define the term video conferencing.**

Ans: A video conference is meeting between two or more geographically separated people who use a network to transmit audio and video data. Video conferencing provides a complete simulation of a normal meeting environment, enabling both parties to see, hear and present material, just as if they are in the same room.

iii). **Define bus interconnection.**

Ans: A computer consists of different components such as CPU, main memory, I/O system etc. Data and instructions inside the computer flow between these components in the form of bits. These components are interconnected by using a set of parallel lines (or conducting wires). This set of parallel lines is called bus.

A computer has two basic types of buses. These are:

- (i) System buses                      (ii) Expansion buses

iv) **What is SRAM?**

Ans: SRAM stands for Static M. In SRAM, individual cells are made by using digital gates and each cell can hold its value without any need to refresh it frequently. It is faster than DRAM because it does not have to be refreshed with electric charge frequently and the CPU has not to wait to read & write data.



v). **What are the use of parallel port.**

Ans: In computer terms Port is an interface for the attachment of peripheral devices. Parallel ports are used to connect devices that transfer many bits at a time as these ports use multiple data wires and the bits are sent simultaneously. These devices need fast data transmission, Printer is an example of these devices.

vi). **Why does machine language program execute faster?**

Ans: Machine language program is written in binary language that is directly understandable for a machine (Computer). There is no need of any translator for it. So it execute faster.

vii). **Define stack.**

Ans: Stack is a very important data structure. Data retrieval method of stack is LIFO.

Its mean contents of Stack can be accessed in order opposite to these are stored. The data stored at start will be retrieved at last and vice versa.

viii). **Why a computer needs an operating system?**

Ans: An operating system is system software that provides an interface for the user to interact with the computer. Without operating system a computer would be useless. Its purpose is to organize and control hardware and software resources. Without an OS computer is just like an empty box.

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#### **4. Write short answers to any EIGHT (8) questions: (16)**

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i). **Name different types of viruses.**

Ans: There are many types of viruses but the most common types are as follows

- i. Tojan Horse
- ii. Boot sector virus.
- iii. Chernobal virus.
- iv. Logic bomb.
- v. Redlof
- vi. Trojen Horse.



ii). **Explain data security.**

Ans: When an organization store data of its customers it is also the responsible for making that data secure from unauthorized access. Online availability of personal data that may be about credit card, bank account, examination result has created the issue of data security. If anyone gets this data the organization and owner of data both may suffer a loss.

iii). **What is Redlof?**

Ans: It is a polymorphic virus that is written in VB script language and infects the Folder.htt that is the part of Windows Active Desktop. It attaches itself to other infected files and causes destruction.

iv). **Describe Microsoft Word.**

Ans: Microsoft Word is a Word processor. Text editors or word processors are the programs that have the capability to change the text without retyping the entire document. Changing an existing document is called editing the document.

v). **Distinguish between save and save as options.**

Ans: "Save" option sets the default file format that is used when you save documents permanently on the disk for future use. "Save As" option is used save a file to a file name, format, and location that you specify. If you are saving a file that has not been saved before, the Save As dialog box appears automatically when you click Save.

vi). **Write basic features of spreadsheet software.**

Ans: All the spreadsheet softwares have the following common feature.

- Rows and columns in spreadsheet make a grid like structure.
- Formulas are used for calculations.
- Functions are built-in formulas that are used for calculations.
- Commands are used to perform operations.



vii). What is merge and centre option in Excel?

Ans: In Excel, more than one cell can be merged or combined into one cell in Excel spreadsheet. The Merge and Center command merges multiple cells into single cell and centers the content of the left most cell. Merging multiple cells into single cell keeps the data of the upper leftmost cell only and the data of other cells is lost.

viii). What is E mail?

Ans: E-mail stands for electronic mail. It is a process of sending messages directly from one computer to another. The sender and receiver may be sitting in the same building or anywhere in the world. The receiver must have the e-mail facility to which the sender is sending message.

ix). Explain the importance of Search Engine.

Ans: Search engines are the special websites that provide facility to Internet users to search information on the Internet. For example, google.com, ask.com etc. are very popular search engines. Search engines ask you to enter some key words about the data or information you want to search on the Internet. And display the links of the web pages containing required information.

## Section-II

**Note:** Attempt any THREE (3) questions.

4. What are impact printers? Explain the types of impact printers. (8)

Ans: Printers are the most commonly used output devices. They are used to print the output on the printer in the form of characters, symbols and graphics. The printers are divided into two categories.

### Impact Printers

An impact printer prints characters and graphics on the paper with the strikes of hammer or wheel against an inked ribbon. The image of the characters or graphics is created on the paper. The examples of impact printers are:



- Dot Matrix Printer
- Daisy Wheel Printer
- Line Printer

### **Dot Matrix Printers**

A dot matrix printer contains a print-head with a matrix of small pins arranged in rows and columns. On receiving instruction from computer, the dot matrix printer can push any of the pins out in any combination. When combination of pins on a print head strike on inked ribbon, it creates dots that form characters or graphics on the paper. Print heads are available with 9, 18 or 24 pins. The dot matrix printer with 24-pin head provides best quality printout.

### **Laser Printer**

A laser printer is the fastest and high quality non-impact printer. It works like a photocopying machine. The laser printer uses a special beam of light called "Light Amplification by Stimulated Emission of Radiation (LASER)" to transfer images of characters, graphics (or any other shapes) on the paper. The laser printer has a special drum inside it. The laser printer produces an image of the output on a drum with laser beam and magnetically charged powered ink, called toner, and then transfers the image from drum on the paper. The image of the output is formed by means of microscopic dots. The laser printer can produce high quality images of both text and graphics ranging from 300 dpi to 1200 dpi (dpi means dots per inch and dots refers to microscopic dots). The printing speed of a laser printer is about 4 to 32 pages per minute (for documents that have only text) for microcomputers and up to 200 pages per minute for mainframe computers.

### **Line Printer**

This type of impact printer is normally used by mainframe and mini computers. It prints a complete line of characters at once rather than a single character at a time. The printing speed of these printers is up to 3000 lines per minute. Line printers are divided into two types:



- Chain printer
- Band printer
- 5. Explain different network models. What are the advantages and disadvantages of each network model? (8)

**Ans:** The most popular network models are described below.

#### **Client/Server Network**

In client/server network model the clients are all computers or nodes on the network and server is a central computer that controls the network. Server computer is usually powerful computer. In addition to control the network, the server also provides a centralized storage area for programs and data. It has hard disk of large capacity that hold the shared data file or database. In this model processing is usually done, by the server, and only the results are sent to the clients or nodes. Sometimes, the server and the client share processing.

The advantages of client/server network are as follows.

- It reduces the volume of data traffic on the network.
- It allows faster response at each node.
- It allows using less expensive computers as client because most of the work is done by server.

#### **Peer-to-Peer Network**

In peer-to-peer arrangement, all nodes on the network have equal status and rights. There is no computer like server that has control over others. Each computer stores files on its own storage devices and has its own peripheral devices. The users can share each others data and resources. The main disadvantage of peer-to-per network is that it becomes slow under heavy use.

#### **Hybrid Network**

The hybrid network has features of both client server and peer-to-peer network. It has a server and the users can share the data and software. Similarly, each node can store its own files programs and has its own peripheral devices. The users can also share each others' data and devices. It is the main advantage of hybrid arrangement.



6. Explain different data types with examples (8)

Ans: Types of Data

There are different types of data representation in data communication. These are text, numbers, images, audio, and video.

(i) Numeric

Numeric data consists of digits from 0 to 9, +(positive) or -(negative) signs and a decimal points. It can be of integer type or real type data.

Integer data: It consists of positive or negative whole values including 0.

For example, 420,302, + 62, -26 etc.

Real data: It consists of values that have decimal point.

For example, 15.4, .006, 4.07, -6.27 etc.

(ii) Text

It consists of words, sentences, paragraphs etc. For example, 'Pakistan', 'I Love Pakistan', and this paragraph written about "Text" etc. The text is stored as ASCII codes.

(iii) Image

It consists of charts, graphs, pictures and freehand drawings. The data is sent as contiguous bits. These bits are packed into bytes (8-bits = 1 byte). The receiving site must store the data as contiguous bits.

(iv) Audio

Sound is a representation of audio, which may be any music, speech or any other sound stored electronically. The sound is converted into digital code by sampling the sound wave 44,056 times per second and converting each sample into a 16-bit number.

(v) Video

Video consists of full-motion images that create actions and movements. It can be produced by a video camera.

7. Describe language processors or translators and their use. Discuss different types of language processors. (8)

Ans: Language processors or translators are softwares used to translate the source program (code written in high level



language) or assembly language program into machine code. The language processor is of three types

- 1) Compilers.
- 2) Interpreters.
- 3) Assemblers.

#### (1) Compiler:

The translator program that translates the complete source code (written in high-level language) as a whole in machine code before execution is called compiler. The compiler takes source code as input and returns object code as output. The Object code or program can be executed a number of times without translating it again.

#### (2) Interpreter:

A translator, translates instructions of source program into machine code one after the other and execute it immediately before the translation of the next instruction is called interpreter.

An interpreted program runs slower than a compiled program because an interpreted program has to be translated every time by an interpreter, to execute it. Although, the process of interpreting a program is slower but it is very useful during program development as errors can be detected and corrected very easily.

#### (3) Assembler

A program written in assembly language must be translated into machine code before to execute on the computer. A translator program that translates the program written in assembly language into machine code is called assembler.

4. Define virus. Discuss different types of viruses

**Ans: Computer Virus**

"A destructive program containing code that can generate copies of itself and attaches itself with other program so that it is automatically executed when those programs are executed".

#### Types of Viruses

There are many types of viruses, but the most common types of viruses are described below.

- (i) Boot sector virus.



- (ii) Chernobal virus.
- (iii) Logic bomb.
- (iv) Redlof
- (v) Trojan Horse.

#### **Boot Sector Virus**

The first sector of disk which contains the instructions to automatically load the operating system is called boot sector. Boot sector virus modifies these instructions and is loaded into memory whenever computer is turned on. The virus is attached with the executable files, i.e .exe, .com files. When these files are used by the user, the virus attached with these files is also activated and then it infects other files and also performs destructive activities and destroys the data files also.

#### **Chernobal Virus**

The famous chernobal virus deletes all the Microsoft office files and also the partition information from the disk. When the partition information of the disk is deleted, the important data on the disk cannot be accessed.

#### **Logic Bomb**

Logic bomb is a virus, which is activated on the basis of a logical condition. When the condition given inside this virus is true, it is activated. Normally, it is activated at a certain date and time. It can be detected by chance.

#### **Trojan Horse**

Trojan Horse virus is the part of some computer game programs. When game program is installed in the computer and run, this virus is activated. An example of Trojan horse is FORMAT C.

#### **Redlof**

Redlof virus is a polymorphic virus, written in Visual Basic Script. This virus changes its nature with passage of time and therefore it is called polymorphic and it is difficult to catch this virus by an anti-virus program. It infects the "Folder.htt" file which is the part of Windows Active Desktop.